

IN THE CLAIMS:

- 1 1. (Original) A layer 2 switch, comprising:
2
3 a plurality of ports, at least one port of said plurality of ports capable of being set
4 to a status of root guard protected (RG status);
5
6 first circuits for running the spanning tree protocol (STP) in said layer 2 switch,
7 said STP capable of selecting said at least one port as either a designated port or as a root
8 port;
9
10 second circuits for running root guard protocol, and said root guard protocol de-
11 termining whether or not a port set to RG status has been selected by STP as a root port;
12 and,
13
14 blocking circuits to set said at least one port into blocked status, said blocking cir-
15 cuits setting said at least one port into blocked status in response to said at least one port
16 being both in root guard protected status and selected by STP as a root port.
- 1 2. (Original) A method of managing a switch for use in a computer network,
2 comprising:
3
4 providing a plurality of ports, at least one port of said plurality of ports capable of
5 being set to a status of root guard protected (RG status);
6
7 setting said at least one port to RG status;
8
9 running a spanning tree protocol (STP) in said switch, said STP capable of select-
10 ing said at least one port as either a designated port or as a root port;

11

12 running root guard protocol, and said root guard protocol determining whether or
13 not a port set to RG status has been selected by STP as a root port; and,

14

15 setting said at least one port into blocked status, in response to said at least one
16 port being both in root guard protected status and selected by STP as a root port.

1 3. (Original) A method of managing a switch for use in a computer network,
2 comprising:

3

4 providing a plurality of ports, at least one port of said plurality of ports capable of
5 being set to a status of root guard protected (RG status);

6

7 setting said at least one port to RG status;

8

9 running a spanning tree protocol (STP) in said switch, said STP capable of select-
10 ing said at least one port as either a designated port or as a root port;

11

12 determining whether or not said at least one port set to RG status has been se-
13 lected by STP as a root port;

14

15 setting said at least one port into blocked status in response to said at least one
16 port being both in root guard protected status and selected by STP as a root port.

1 4. (Canceled)

1 5. (Previously presented) A computer network having a core network and a plural-
2 ity of customer networks connected thereto by a perimeter port of a perimeter switch in
3 said core network, said perimeter port being connected to a port of a switch in a customer
4 network of the plurality of customer networks, said computer network comprising:

5
6 a first process for setting said perimeter port to a status of root guard protected
7 (RG status);

8
9 a second process for running the spanning tree protocol (STP) in said perimeter
10 switch, said STP capable of selecting said perimeter port as either a designated port or as
11 a root port;

12
13 a third process for executing a root guard protocol, said root guard protocol de-
14 termining whether or not a port set to RG status has been selected by STP as a root port;
15 and,

16
17 a fourth process for setting said perimeter port into blocked status in response to
18 said perimeter port being both in root guard protected status and selected by STP as a root
19 port.

1 6. (Previously presented) A computer network, comprising:

2
3 means for establishing said computer network as having a core network and a plu-
4 rality of customer networks connected thereto by a perimeter port of a perimeter switch in
5 said core network, said perimeter port being connected to a port of a switch in a customer
6 network of the plurality of customer networks;

8 means for setting said perimeter port to a status of root guard protected (RG
9 status);

10
11 means for running the spanning tree protocol (STP) in said perimeter switch, said
12 STP capable of selecting said perimeter port as either a designated port or as a root port;

13
14 means for executing a root guard protocol, said root guard protocol determining
15 whether or not a port set to RG status has been selected by STP as a root port; and,

16
17 means for setting said perimeter port into blocked status in response to said pe-
18 rimeter port being both in root guard protected status and selected by STP as a root port.

1 7. (Original) A method for operating a computer network switch, said computer
2 network switch having a perimeter port connected to a second switch, comprising:

3
4 setting said perimeter port to a status of root guard protected (RG status);

5
6 running a spanning tree protocol (STP) in said computer network switch, said
7 STP capable of selecting said perimeter port as either a designated port or as a root port;

8
9 executing a root guard protocol, said root guard protocol determining whether or
10 not a port set to RG status has been selected by STP as a root port; and,

11
12 setting said perimeter port into blocked status in response to said perimeter port
13 being both in root guard protected status and selected by STP as a root port.

1 8. (Previously presented) The method of claim 7, further comprising:
2 executing a process in a CPU control engine to set said perimeter port to a status
3 of root guard protected;
4 executing a process in said CPU control engine to run said spanning tree protocol;
5 and,
6 executing a process in said CPU control engine to execute said root guard proto-
7 col.

1 9. (Previously presented) A computer readable memory device, comprising: said
2 computer readable memory device containing instructions for execution by a processor
3 for practice of the method of claim 7.

1 10. (Previously presented) Electromagnetic signals propagated over a computer net-
2 work, said electromagnetic signals having instructions for execution by a processor for
3 practice of the method of claim 7.

1 11. (Previously presented) The computer network of claim 5, wherein two or more
2 processes of said first process, second process, third process and fourth process are the
3 same process.

1 12. (Previously presented) A method for operating a switch for use in a computer
2 network, comprising:
3 setting at least one port of said switch to root guard protected status (RG status);
4
5 running a spanning tree protocol (STP) capable of selecting said at least one port
6 as either a designated port or as a root port;

7
8 determining whether or not a port set to RG status has been selected by STP as a
9 root port; and,

10
11 setting said at least one port into blocked status, in response to said at least one
12 port being both in RG status and selected by STP as a root port.

1 13. (Previously presented) A switch, comprising:

2 means for setting at least one port of said switch to root guard protected status
3 (RG status);

4
5 means for running a spanning tree protocol (STP) capable of selecting said at least
6 one port as either a designated port or as a root port;

7
8 means for determining whether or not a port set to RG status has been selected by
9 STP as a root port; and,

10
11 means for setting said at least one port into blocked status, in response to said at
12 least one port being both in RG status and selected by STP as a root port.

1 14. (Previously presented) A switch, comprising:

2 a processor; and

3 a memory configured to store instructions for execution by said processor, said
4 instructions for performing the steps of:

5 setting at least one port of said switch to root guard protected status
6 (RG status);

7 running a spanning tree protocol (STP) capable of selecting said at
8 least one port as either a designated port or as a root port;

9 determining whether or not a port set to RG status has been se-
10 lected by STP as a root port; and,
11 setting said at least one port into blocked status, in response to said
12 at least one port being both in RG status and selected by STP as a root
13 port.

1 15. (Previously presented) The switch of claim 14, wherein said processor resides on
2 a linecard in said switch.

1 16. (Previously presented) The switch of claim 14, wherein said processor resides on
2 a central processing unit in said switch.

1 17. (Previously presented) The switch of claim 14, wherein said memory is located
2 on a linecard in said switch.

1 18. (Previously presented) The switch of claim 14, wherein said memory is located
2 in a global memory unit in said switch.

1 19. (Previously presented) A switch, comprising:
2

3 a plurality of ports, at least one port of said plurality of ports capable of being set
4 to a status of root guard protected (RG status);
5

6 first circuits for running the spanning tree protocol (STP) in said switch, said STP
7 capable of selecting said at least one port as either a designated port or as a root port;
8

9 second circuits for running root guard protocol, and said root guard protocol de-
10 termining whether or not a port set to RG status has been selected by STP as a root port;
11 and,

12
13 blocking circuits to set said at least one port into blocked status, said blocking cir-
14 cuits setting said at least one port into blocked status in response to said at least one port
15 being both in root guard protected status and selected by STP as a root port.

1 20. (Previously presented) A switch, comprising:

2 a memory configured to store a data structure containing one or more entries, said
3 entries having a "state" field and a "role" field, said state field having a value of
4 "blocked" or a value of "forwarding", said data structure having,

5 a first entry having the role field set to "root port" and the state
6 field set to forwarding;

7 a second entry having the role field set to "designated port" and the
8 state field set to forwarding;

9 a third entry having the role field set to "blocked port" and the state
10 field set to blocked; and,

11 a fourth entry having the role field set to "root inconsistent port"
12 and the state field set to blocked; and,

13 a processor to write and read said data structure in implementing a root guard pro-
14 tocol.